

**REMARKS**

Claims 1 and 24 have been amended by incorporating the limitations of claims 2 and 5. Claims 2 and 5 have been cancelled. Claims 1 and 24 have further been amended by adding the conditions of the curl retention (for two hours at 90% relative humidity), descriptive basis for which may be found in the specification at page 15, and by adding that the composition is a hair fixative composition, descriptive basis for which may be found in the specification at page 1, line 7.

The present invention discloses heat treated xanthan gum which has the unexpected property of acting as a hair fixative with excellent humidity resistance for at least two hours at 90% relative humidity. It is prepared by heat treatment at sufficiently low moisture and high temperature so that the chains of xanthan molecules associate.

Claims 1, 10-11, 13-18, 20-26 and 28 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Shibata, et al. (EP 0 784 970). Shibata teaches a hair cosmetic composition containing an oxyalkylenized xanthan gum in combination with at least one component selected from an oxidizing agent, a reducing agent, a film-forming polymer, an oxidative dye or an acid dye. In contrast, the present invention discloses a hair cosmetic composition in which the fixative is a heat-treated xanthan. There is no teaching or suggestion of a heat-treated xanthan in Shibata.

The Examiner disagrees, stating that Shibata teaches heat treatment in that the xanthan gum is brought to a temperature of 40-100°C. However, as recognized by the Examiner, there is no teaching of low moisture content during this process.

Shibata raises the temperature of the xanthan gum in the presence of alkali, water, and alkylene oxide in order to cause a chemical reaction. This is accomplished in a closed vessel for a number of reasons. Thus, the moisture content is never decreased (driven off). This is a very different reaction than the presently claimed heat treatment in that the xanthan gum in Shibata is etherified (addition of hydroxyalkyl groups to the chains), instead of having the

chains associate. In the presence of alkali, water and heat the xanthan gum polymer chains will actually degrade resulting in a lower molecular weight polymer rather than associate as presently taught.

Claims 23 and 28 are further not obvious in view of Shibata as Shibata neither teaches nor suggests that the xanthan gum may be used in a surfactant-free mousse. The Examiner argues that Shibata teaches surfactant-free formulations. Applicants would like to point out that mousses typically require a surfactant to allow the mousse structure (foam) to form. It is not necessary in other hair fixative forms which do not foam. As the Shibata formulation pointed out by the Examiner is not a foam or mousse, there is no need for a surfactant and one skilled in the art would not extend this teaching to a mousse.

Thus it is clear that Shibata is deficient in that it does not heat treat the xanthan gum and does not teach a surfactant-free mousse.

The Examiner then uses the JP reference to overcome these deficiencies. One skilled in the art would not combine Shibata and the JP reference as Shibata specifically states that the compositions will not work unless the xanthan gum is oxyalkenylized (see Table 2). As the JP reference does not teach that such oxyalkenylization is an option, the skilled artisan would not combine these references. Further, Shibata is directed to hair dyes and setting agents, neither of which are mentioned in the JP reference.

The JP reference teaches heat-treated xanthan gums for delivering excellent stability with good feel (without greasiness or stickiness). It teaches that the heat-treated xanthan gum may be used in a multitude of cosmetics, specifying foundations, makeup underlayers, rouges, eye shadows, mascaras, eye-liners, eyebrows, overcoating agents, lipsticks, skin cosmetics toilet water, emulsions, creams, packs, massage materials, lip creams, hand creams, cleansers, and hair cosmetics.

There is nothing in the specification which would lead one skilled in the art to chose hair fixatives out of the numerous hair cosmetic compositions known, which include without limitation, in addition to hair fixatives, shampoos,

conditioners, cream rinses, dyes, straightening agents, perm and body waving agents, moisturizers, hair mascaras, shine products, detanglers, pomades, curl boosters, texturizing agents, lotions, hair growth products and setting agents. The purpose of the application is clearly to obtain stability without greasiness or clamminess (stickiness). These are not the negative organoleptic properties associated with hair fixatives, but with hair cosmetics such as moisturizers. Also, hair moisturizers are more similar to the skin cosmetics listed and exemplified. Further, there is no mention of hair fixative or curl retention properties imparted by the heat treated xanthan gum, and the list of optional ingredients, which goes on for about six pages, does not mention hair fixatives. Thus, one skilled in the art looking to making a hair fixative would not be likely to combine the JP reference with Shibata.

Applicants further submit that the compositions of the JP reference would not fix hair such that it would exhibit at least 80% curl retention in view of the other ingredients present. To support such claim, Example 3 of JP 11-236310 was prepared and compared to the composition of the present application (see the enclosed Martino Declaration). Example 3 was chosen as the closest example. As noted by the Examiner, the present invention teaches hair cosmetic compositions which includes "creams" as stated at page 4, lines 15-19. The JP reference exemplifies emulsions (examples 1 and 4), toilet water (example 2), cream (example 3), and cleansing gel (example 5). A cream is the only exemplified formulation of the JP reference which is allegedly also taught in the present invention, though Applicants maintain that the cream of the JP reference is a skin cream, not a hair fixative cream. Thus, Example 3 of the JP reference is the closest art example.

The Martino Declaration shows that the formulation of JP 11-236310 has only about 70% curl retention after 2 hours in contrast to the presently claimed compositions which have over 80% curl retention, and which is evidenced in Example 3 of the present application. The Martino Declaration further shows that formulation 13 of the present invention has about 95% curl retention after 2 hours. This comparison shows that the prior art loses about

30% of the curl retention or about six times that lost by the Formulation 13 loss of 5%, and thus proves the superiority of the present application.

In light of the above arguments, it is clear that JP 11-236310, in combination with Shibata, does not obviate a hair fixative composition comprising heat-treated xanthan gum.

Claims 1-22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 11-236310 in view of Sajic, et al. (US 6,017,860). One skilled in the art would not combine the JP reference with Sajic. First, as evidenced in formulation 17, the xanthan gum of Shibata does not provide hair fixative properties. Second, one skilled in the art would not combine Sajic, which is directed to a 3-in-1 shampoo with the JP reference to obtain a fixative composition as the JP reference is not directed to fixative compositions as detailed above.

Even if the skilled artisan were motivated to combine the two references, the present invention would not be obviated. The JP reference alone does not obviate the presently claimed invention as argued above. Sajic does not cure the deficiencies of the JP reference and is used to show that a second fixative composition may be added. Sajic discloses a 3-in-1 shampoo, which may optionally contain xanthan gum as a swellable polymeric thickening agent. See column 6, lines 47-53. Thus, the xanthan gum is added as a thickener for the shampoo, not as a hair fixative as in the current application.

This difference is emphasized by the mechanism of the shampoo and the examples. Starting at column 6, line 56, the shampoo mechanism is described in which it is stated that upon solubilization of the shampoo, the viscosity decreases (as the xanthan gum is water soluble, it washes away), releasing the surfactant monomers and anionic styling polymer to form a styling/conditioning polymer which adheres/attracts to the hair.

That the xanthan gum is washed away is also evidenced in that the examples which do not contain "styling polymers," but contain xanthan, have very poor styling. For example, formulation 17 contains 1.0% xanthan, but no

"styling polymer" and has "very poor" styling properties. In comparison, comparative formulations 18-20 which contain "styling polymers" have good to excellent styling properties.

Applicants submit that the xanthan gum present in the compositions of Sajic would not fix hair such that it would exhibit at least 80% curl retention in view of the other ingredients present. To support such claim, Applicants once again turn to the Martino Declaration which shows that Formulation 17 of Sajic was prepared and compared to the composition of the present application. The experiment shows that the formulation of Sajic, after 2 hours, has only 67% curl retention. In contrast, the presently claimed compositions have over 80% curl retention and, as evidenced in the declaration, formulation 13 of the present invention has about 95% curl retention after 2 hours. This comparison shows that the prior art loses about 33% of the curl retention or greater than six times the 5% lost by the Formulation 13 over the same time period, and thus proves the superiority of the present application.

Thus, in light of the above arguments, it is clear that the JP reference in combination with Sajic does not obviate the present invention.

In view of the foregoing, Applicant submits the Application is now in condition for allowance and respectfully requests early notice to that effect.

Respectfully submitted,



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